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AUTHOR Mullally, Lee J.
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ABSTRACT

This chapter examines the roles of the instructional developer and the media production specialist in the development of instructional projects in the context of a six step development process. These steps include pre-assessment, establishing goals, identifying and specifying objectives, designing strategies, selecting and/or producing resources, and evaluating performance. The concepts of production value, design value, and fixed design value are presented, together with a model for calculating these values for any given project. The use of the outcomes of these determinations for allocating resources to the various aspects of a project is also explained. It is argued that the instructional developer and the educational media production staff must work in a cooperative manner at the various stages of the process, but that the production value of the materials produced must not overshadow their design value. In addition, it is suggested that although the developer should be considered to be the leader of the development team, development decisions should be made by the whole team, including the production staff. Two figures are included. (10 references) (Author/EW)

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B. STAFF RELATIONS

Chapter 27

The Instructional Developer and the Educational Media Production Staff: Relationships and Expectations

Lee J. Mullally

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What is the appropriate role for a media production specialist to play in a project undergoing instructional development? Should materials produced as part of such a project be "slick," or can they be "quick and dirty"? What portion of a project budget should be devoted to production, and how should this portion be determined? The following chapter examines these questions from within the framework provided by a typical ID system.

Instructional development efforts often involve a team approach and should include specialists in learning theory, testing and evaluation, and media (Hoban, 1974). The educational media production staff is an important part of the instructional development team and is expected to perform many useful functions, especially if the production staff functions at a design level rather than at a mechanical level (Kemp, 1980). Producing media to meet specific objectives is more important than being able to merely perform those techniques involved in the preparation of the media. The relationship between the instructional developer and the educational media production staff is very important to ensure that the design process and the production process are integrated.

This chapter will explore the relationship between the instructional developer and the educational media production staff. In doing this it might be helpful to examine the steps in one systematic approach to the development of instruction, examining the roles adopted by the instructional developer and by the media production staff as they progress through the process. A six-step process (Mullally, 1977) will be used in describing the relationship between these two roles. These steps include pre-assessment,

establishing goals, identifying and specifying objectives, designing strategies, selecting and/or producing resources, and evaluating performance. The role relationships to be described are not peculiar to this model of the ID process, however, and the following description could be applied to most other models with little modification. (See Figure 27-1)

PRE-ASSESSMENT

Analyze the Learner

The instructional developer is responsible for determining the characteristics of the individuals who are to learn from a specific instructional unit. If instructional development is a process designed to maximize learning, the learners must be analyzed in terms of entry-level skills and their knowledge in specific content areas, developmental abilities, socio-economic characteristics, attitudes and cognitive styles. It is very important to consider learner aptitudes and cognitive styles. It is very important to consider learner aptitudes when media decisions are to be made. Aptitudes will also influence the content treatment, especially if learners are at varying ends of the

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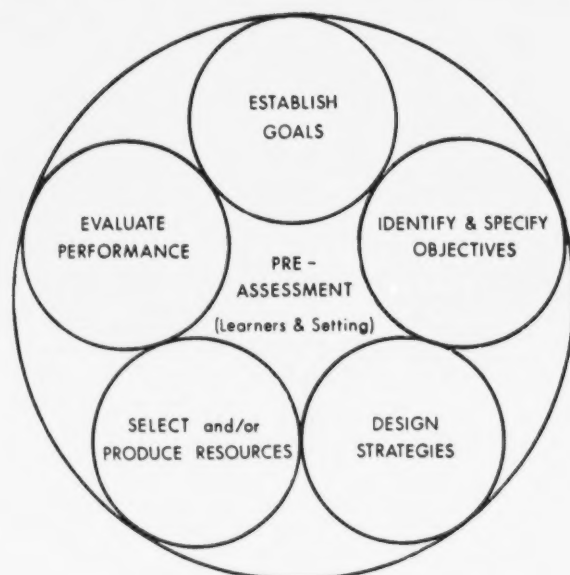


Figure 27-1. Preassessment.

developmental scale. Learners having different socio-economic backgrounds may require different referents and certainly will vary in their experiences with educational media, especially now that micro-computers can be found in many homes.

The attitudes that a learner possesses may require the inclusion of different strategies in order to motivate learning. The variation in cognitive styles among the students might require the use of different forms of educational media, instructional environments or evaluation procedures.

The instructional developer is responsible for obtaining or designing the instruments which will be used in determining these learner characteristics. These instruments should then be administered to the sample population which will experience the instructional prototype, and a complete description of each learner should be developed for future reference as the instructional unit develops.

The media production staff is expected to be able to produce various types of media for accommodating the differences which exist among the learners. Production specialists must realize that no one medium can be used for all learners with equal success. Although the media production staff is not directly involved in analyzing the learner, the staff will need to translate learner differences into production needs as the strategies are designed and the resources are selected.

Analyze the Setting

Consideration of the learning environment is very important when designing instruction, and

both the instructional developer and the media production staff should be involved in analyzing the setting. Some learning settings are well-equipped instructional classrooms, containing an abundance of resources, while others are stark, four-walled rooms without any equipment. Other environments might involve a field or laboratory-type setting. Some settings promote media utilization while others may limit the type of media that can be used. For example, having a remote-control unit that allows the instructor to control projection or audio equipment from the front of the learning environment would promote the use of media.

Constraints other than those involving equipment must also be identified as one analyzes the setting; examples might include personnel, money, time or administrative policy. These constraints will also influence the design of instruction, and in turn the types of educational media which might be incorporated into this design. While the modification of the design in light of these influences is the prime task of the instructional developer, the production staff should be aware of them also; they will affect the production budget, time frame, types of materials and other options involving materials production.

ESTABLISHING GOALS

Establishing goals is mainly the responsibility of the instructional developer and the suprasystem in which the developer functions. A needs assessment can be conducted in order to identify the societal, institutional or training needs. The needs that have been identified through an analysis of societal or institutional influences are usually translated into goal statements or broad statements which reflect the general learning outcomes for a particular unit of instruction. The instructional developer is responsible for establishing goals that are consistent with an institution's needs.

The media production staff is not involved in establishing these goals; however, once the goals have been established, the media production staff should be aware of the goals for the particular unit of instruction with which they will be working. This awareness is essential if they are expected to produce materials for some specified end, or if they are expected to perform at the design level rather than at the mechanical level. If these goals are not shared with the production staff, its members will lack a global view of the instructional unit.

IDENTIFYING AND SPECIFYING OBJECTIVES

The instructional developer is primarily responsible for specifying the terminal objectives, deriving them from the goal statements which were established in the previous step. Each terminal objective can then be analyzed in terms of those specific tasks involved in its achievement. This analysis assists the instructional developer in

specifying the enabling objectives for each of the terminal objectives. The enabling objectives, when developed in a hierarchical format, will later assist the developer in sequencing the instructional activities for the learner. It would prove valuable for a learning theory specialist to be a member of the ID team in order to assist in developing the objectives and the sequencing hierarchy.

Once the objectives are developed, the instructional developer can easily design measures for assessing their achievement, since those evaluative measures should mirror the behaviors, conditions and criteria specified within the objectives.

Although the instructional developer is primarily responsible for specifying the objectives, the media production specialist must be aware of the objectives in order to better select or produce the media to be used for achieving them.

The conditions specified within each objective might include the use of particular aids or devices which are to be used when the behavior is to be evaluated. Likewise, the learner might be utilizing media as they practice the behavior within the learning environment. The media production staff would be responsible for procuring those media which would be used to attain and/or measure the specific learning intents.

DESIGNING STRATEGIES

The types of instructional activities which the learner will experience in a particular unit of instruction will be determined by the instructional development team. The learning theory specialist and the media production specialist can provide valuable input during this function.

Modes of Instruction

The ID team must determine if the instruction will be in a large-group presentation mode, a small group-interaction mode, or in an independent-study mode.

Pre-assessment data will influence the ID team as they determine which mode(s) of instruction are appropriate. The decision as to which mode of instruction should be employed will be based upon many factors. First, the ID team should examine the data obtained as a result of analyzing the learner. Some cognitive styles are more compatible with an independent-study mode while other styles might be more suited to the large-group presentation mode or to the small-group interaction mode. The data obtained from analyzing the setting will also affect the mode of instruction to be employed. Each mode of instruction involves certain space, material, equipment, personnel, time, and monetary constraints. (Wilkinson, 1973)

The type of objective to be met will definitely influence the mode of instruction, because some objectives can best be attained by a learner working alone, while other objectives may

require the teacher's influence or the influence of peers (Gerlach and Ely, 1980).

Instructional Techniques

The ID team must also decide which technique will be employed within the particular mode of instruction. Although many instructional techniques exist, the following will be discussed in order to illustrate the importance of carefully selecting each technique: lecture, discussion, demonstration, and audio visuals.

If learner characteristics indicate cognitive styles with a preference for listening to an authority and the objectives are pertinent to the lower levels of learning (e.g. knowledge or comprehension), the lecture technique might best be utilized. That technique could be employed in either the large-group presentation mode or the small-group interaction mode. If the lecture technique were identified as being viable, the instructional developer, the learning theorist and the content-area specialist would be the team members primarily responsible for developing this strategy.

If the learner characteristics indicate a preference for verbal interaction, and if the objectives were concerned with the higher levels of learning (e.g. application, analysis, synthesis, or evaluation), the discussion technique might be appropriate. Again the instructional developer, the learning theorist, and the content-area specialist should develop this strategy. If discussion stimuli are needed, the media production staff should be consulted.

Those students who learn from observing real objects or phenomena and whose cognitive styles contain highly developed kinesthetic elements would most likely benefit from participating in or observing demonstrations. Although this technique, again, would primarily be developed by the instructional developer, the learning theorist and the content-area specialist, the media production staff might be involved in developing some of the materials, especially if laboratory manuals or worksheets were needed.

Those students having a preference for visual and/or auditory stimuli, and for the written and/or spoken word, would most likely learn when experiencing the audiovisual technique. This technique could be utilized in all three of the modes of instruction and would tend to the many different characteristics that learners possess. The development of this technique would involve the media production staff, as well as the instructional developer, the learning theorist, and the content-area specialist.

Thus, the instructional strategy for a particular unit of study must be based upon pre-assessment data and the specific objectives, and must be evolved through the cooperative efforts of the instructional development team.

SELECTING AND PRODUCING RESOURCES

Many educational media selection schemes have been developed to assist one in selecting instructional resources. However, most of them are limited to the selection of equipment and material resources and ignore the selection of facilities, personnel, time, and financial resources. These factors must also be considered when designing the unit of instruction, since each may prove to be a constraint within the system. These educational media selection schemes also vary as to the basic determinant used in making the selection decision. Allen (1967) proposed a selection procedure which was based upon the type of objective that one was attempting to achieve. Kemp (1971) proposed that one identify the teaching/learning pattern that would be most appropriate for the objective, the category of learning experience (e.g., direct, sensory, vicarious, etc.), and the verb and content referent in the objective before selecting the educational media. DeNike and Strother (1976) suggest that the educational cognitive style of the learner is an important determinant for selecting educational media. The author suggests that educational media be selected according to all of these variables. The learning intents, the learner characteristics, and the instructional strategy to be employed are important factors to consider when selecting educational media.

If local production is required in the absence of commercially prepared educational media, the instructional developer will be required to analyze the availability of existing resources (e.g., personnel, money, time) and work closely with the educational media production staff in deciding what educational media might be produced.

In the past, educational media was, for the most part, intuitively designed. As a result, the educational media which was used in instruction was often inappropriate and inefficient, if not totally ineffective. Not only was the content selection and message design of the educational media less than optimum, but the cost of the media, in terms of both time and money, was often unrelated to the value it might contribute to the achievement of the instructional goals for the unit being designed.

Once the mode of instruction and the medium for the message have been selected, the message must be designed. Both the instructional developer and the education media production staff should be involved in the message design. It is particularly the duty of the instructional developer to ensure that the final message design is in accord with the research in this area.

Producing the message vehicle is primarily the task of the educational media production staff. However, the instructional developer should join the educational media production staff in determining the method of production that is most appropriate to use in terms of the time and cost of the message vehicle.

The instructional developer must have final authority over quality control. The instructional developer must be able to reject an unsatisfactory product. If the planning of the production has been adequate, the quality should be sufficient and the rejection of products would be minimal.

The establishment of the production schedule and budget, like the schedule and budget of the entire development project, must be the responsibility of the instructional developer. Educational media has been produced with a high degree of artistic quality and polish and may be "over-produced." It also has been produced to yield an "amateurish" quality. It is the responsibility of the instructional developer, working closely with the production team, to determine the degree of technical quality required for the produced educational media. The instructional developer will need to allocate resources for both design efforts (e.g., project management, objective development, production of evaluation materials and processes, etc.) and production efforts. Dunathan (1979) describes how these allocations may be made and this decision process is graphically depicted in Figure 27-2.

The general level of achievement for the terminal objectives must be determined. This is the design value of the project and will always be high since the learner is expected to achieve the objectives of the instructional unit.

Need is a measure of the degree of facilitation required by the students to meet the terminal objectives; in other words, it is a measure of the discrepancy between the existing situation and the situation specified in the design value. This need has two components: a "real" factor and a "perceived," or subjective, factor.

The real factor represents the degree of design sophistication which the unit of instruction must represent in order to adequately insure that the learners achieve the terminal objectives. It is determined, in part, by such factors as the motivational level of the students, their backgrounds and skill levels, and the cognitive complexity of the learning task.

The perceived factor represents how important it is for the students to meet the terminal objectives in the eyes of those who are not directly involved in developing or implementing the unit of instruction, but who otherwise do have an influence upon the developmental project. It also includes the perception these people have of the difficulty the students have in meeting the terminal objectives.

The overall need value used in determining the production value is a result of the interaction of these two factors. The instructional developer should differentially weight the two factors composing need when determining the production value. Greater emphasis should be placed upon real needs, as opposed to perceived needs, whenever conditions permit.

If the need for a particular unit of instruction is low, the production value will increase. How-

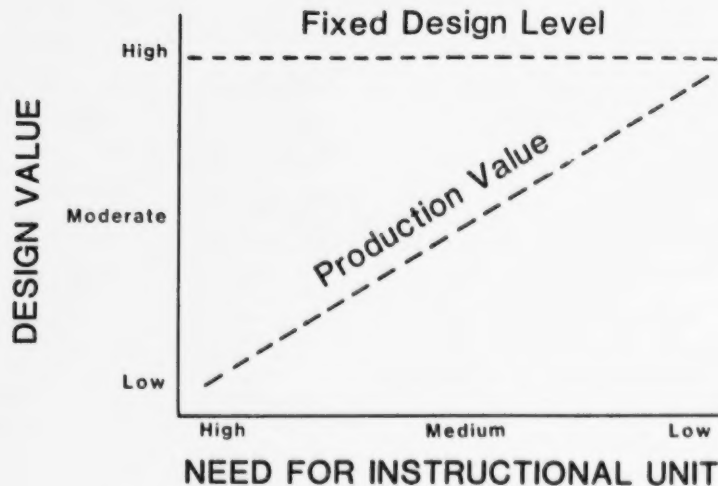


Figure 27-2. Resource allocation.

ever, if the need for a particular unit of instruction is high, the production value can safely decrease. For example, if a school system is attempting to teach communication skills to students so that the students will increase their performance on a state competency test the need to develop and teach these skills would be high and would not require extremely sophisticated or highly technical educational media. When developing the communication skills instructional unit, the instructional developer should allocate more resources for design functions and less for the production of educational media. A rational allocation of resources for the production of educational media is critical.

It is the responsibility of the instructional developer to determine both the design value of the instructional unit and the need for that unit. In addition to these factors, the instructional developer must consider the life-span and audience size when determining the appropriate production value for the educational media that is to be purchased or produced. The developer must have the final authority to reject the product because it exceeds the quality standards by too great a degree, and so exceeds the cost that the product can justify. The allocation of resources for producing educational media must rationally be accomplished, especially when funds are continually decreasing.

EVALUATING PERFORMANCE

The evaluation of student performance can only take place after the prototype, designed through the above steps, has been developed and tested. The evaluation specialist is the instructional development team member primarily concerned with this function. Tennyson (1978) sug-

gests that instructional development should involve evaluation within each phase of the ID process. Although such an on-going evaluation program would be desirable, caution must be exhibited. If one were to conduct a separate evaluation of the material produced during the selection-and-production stage, more consideration would be given to the production value of the material than to its design value. Although it is important to evaluate the objectives as they are written and to evaluate the match between the objectives and those instructional strategies which have been designed for these objectives, the overall effectiveness of the instructional unit as a whole is far more important than the quality of any particular isolated stage within the ID process.

Based upon the results of analyzing the student performance, the instructional developer may need to work with the learning theorist to improve the specification of learning objectives or their hierarchical structuring, or he may find that revisions are needed in the design of the instructional strategies. The instructional developer and the educational media production staff may find it necessary to modify either the pre-existing resources selected for use in the unit or those which have been specifically designed for the unit, or both. The instructional designer might work with the evaluation specialist in order to improve the preassessment measures or those used to measure the specific instructional outcomes of the unit of instruction.

If student performance data is positive, the prototype unit can be implemented. However, if the data suggests problem areas, the necessary specialists, including the educational media production staff, must cooperate with the instructional developer in revising the instructional unit.

CONCLUSION

The instructional developer and the educational media production staff must cooperatively work together at various stages within the instructional development process. The outcome of the process is the creation of an instructional development process. The outcome of the process is the creation of an instructional system which will maximize learning. Various sub-systems are at work within that system, such as the system for the production of instructional products. However, the design value is crucial to the development of the system, and should not be overshadowed by the production value of those materials which are developed as a part of that system.

Although instructional development is considered to be a team approach, individuals often find themselves functioning simultaneously as the learning theorist, the evaluation specialist, and the educational media production staff. If this occurs, one must constantly step back and look at the process from a wholistic viewpoint. It would be very dangerous to look at the process from a product orientation, that is, as if one's final goal was the development of an educational media product, without examining some of the other stages beforehand.

Instructional developers can and should cooperatively work with the educational media production staff as well as with the other members of the ID team. Each team member can make valuable contributions to the ID process. But this can be done only if each member is familiar with the over-all process, with its final goal, and with the role each member is expected to play in reaching that goal.

Overall leadership for the team should be provided by the instructional developer, but this leadership should be of a facilitative, open, democratic kind which encourages each member to feel a personal stake in the success of the development project. It follows from this that, while the production effort is a subsystem within the development process, the production team is not subsidiary to the developer. Development decisions involving production should be made by the development team, including the production staff; they should not be made solely by the developer, though they should be made solely in terms of development principles.

Thus the developer must ensure, through her/his leadership, that the production team, as well as the other members of the development

team, understand their roles within the development process. And s/he must encourage them to function in terms of achieving the terminal objective for the development project, not in terms of achieving a "hidden agenda," such as the production of materials having an exceedingly high production value.

Only as a last resort should the developer overrule the production team single-handedly. But, since production value must be subsidiary to design value, the power to do so must always reside with the development team, and ultimately with the instructional developer.

If the production staff members are aware of their roles, of the nature of the ID process, of the goals and objectives of the instructional unit, and of the constraints and pre-assessment data, and if the development team has proper leadership, a cooperative, maximally effective and efficient effort can be mounted; otherwise the ID-media production interface will be a constant source of problems.

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